

# targeting extension publications

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The Florida Cooperative Extension Service annually prints hundreds of publications to disseminate information to Florida's citizens. However, many Floridians, including those with limited reading skills, have failed to seek or were unable to use this information.<sup>1</sup> These individuals avoided using Extension publications because many are hard to read and use an unfamiliar technical style. Readability tests of 50 Extension publications showed most were written at the 12th-grade level. These publications lack readability for general audiences because the average Floridian reads at the sixth-grade level.<sup>2</sup>

Readability tests should be used by Extension communicators to help create publications targeted to effectively reach client groups within the general public.

## The Study

The objectives of the study we conducted with limited-resource individuals in Florida were:

1. To determine if individuals exposed to educational materials targeted for their use will have significantly more *knowledge* about the subject matter than individuals exposed to non-targeted materials.
2. To determine if individuals exposed to educational materials targeted for their use will have significantly higher *comprehension* of the subject matter than those individuals exposed to non-targeted materials.

The audience selected for this study consisted of limited-resource individuals participating in existing Florida programs. Limited-resource individuals are those with below-average

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income, education, knowledge, or skills. The guidelines used to target information were developed by Edwin Smith for use in reading programs in colleges with large enrollments of limited-resource students.<sup>3</sup>

The guidelines for targeting were:

1. Plan a series of individual messages that form a complete educational program instead of developing a single "comprehensive" message.
2. List educational objectives in writing *before* developing materials. Use objectives to: (a) determine which information should be included and (b) develop post-communication evaluations.
3. Limit publications or information to less than 1,000 words whenever possible.
4. Use a readability formula that measures characteristics of the material such as sentence length and average number of syllables.
5. Use a dictionary-type readability test to locate and replace difficult words with familiar words.
6. Reduce sentence length and paragraph length. Sentence length should vary between 16 to 22 words.
7. Use direct, declarative sentences that include personal pronouns and other human interest words.
8. Use large type (at least 10 point) with a readable, nonornamental face.
9. Use photographs and illustrations whenever possible, especially for abstract concepts.
10. Use good quality materials (paper, ink, etc.).
11. Test educational materials with a sample group selected from the intended audience. Use the educational objectives to develop test questions and evaluate effectiveness.

### **Sample Selection**

Participants in this study were 181 limited-resource individuals living in rural and urban areas of northern Florida. They included: (1) farmers and their families, (2) home gardeners, and (3) community-improvement club members. Sample members were male and female, primarily black, and with a limited education.

This study compared two Extension publications about the same subject—one developed using Smith's guidelines and one an existing publication. Sweet potato production was chosen as the subject matter because this crop is rarely grown by home gardeners and commercial farmers in the

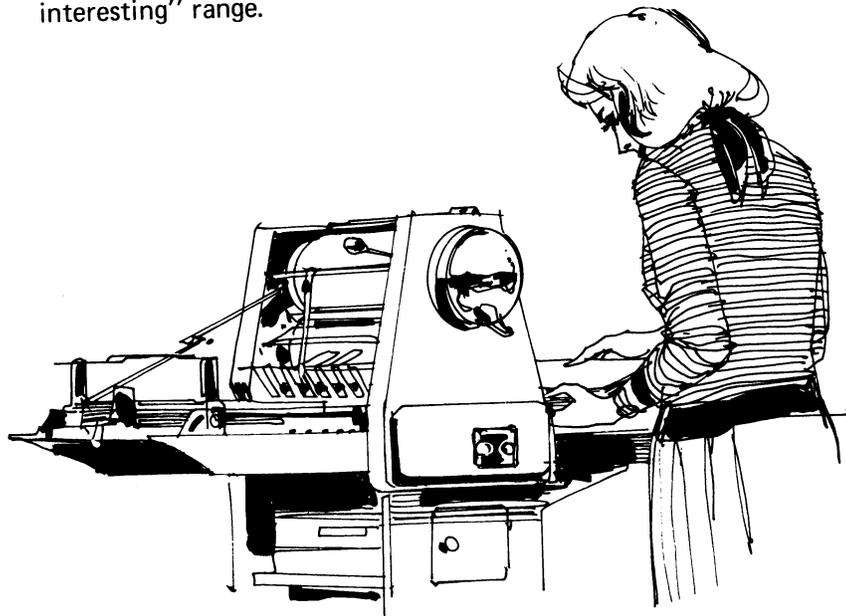
test area. Since knowledge of sweet potato production was limited within the test area, correct responses on the knowledge and comprehension tests were more likely to come from exposure to the test publications.

## Test Publications

The original publication was developed for large-scale, commercial sweet potato growers with at least a high school education. This publication assumed that most commercial farmers understood liming, fertilization, pest and worm control, and other basic agricultural practices. Little information relating to basic agricultural practices was included.

However, county Extension agents suggested that many rural residents seeking information about sweet potato production had less education and limited reading skills.<sup>4</sup> So, a new publication was developed containing basic information for small- or large-scale growers. Information contained in the targeted publication was based on: (1) learning objectives listed before the publication manuscript was developed, (2) Smith's guidelines, and (3) a learning sequence rather than only a sweet potato production sequence.

Both the original and the targeted sweet potato publications were evaluated using the Fry and Dale-Chall readability tests and the Flesch Human Interest Test.<sup>5</sup> Results of these tests showed the original publication was written at the twelfth-grade level and had a human interest score of zero. The targeted publication was written at the 6th-grade level and had a human interest score of 28, which was in the "very interesting" range.



## The Test

The participants were divided into four treatment groups: *Groups I and II* consisted of 51 individuals each. They received a *knowledge* test developed from the list of objectives. Group I received the original publication and Group II received the targeted publication.

*Groups III and IV* consisted of 37 and 42 individuals, respectively. They received a *comprehension* test developed from the list of learning objectives. Group III received the original publication and Group IV received the targeted publication.

**Table 1. Group matching of test and publication.**

		Publication	
		Original	Targeted
Test	Knowledge	Group I (n=51)	Group II (n=51)
	Comprehension	Group III (n=37)	Group IV (n=42)

The questions were pretested using a sample audience from other limited-resource groups meeting in the same area. We pretested the questions to make sure they were accurate and clear.

The tests were administered to 181 limited-resource individuals with either the original or targeted publication. A total of 131 received the test as part of a home visit by an Extension gardening paraprofessional. Also, 50 limited-resource participants received either the original or targeted publication and a test before community development meetings.

## Analysis of the Data

The t-test was used to evaluate the difference in means of test scores between Groups I and II, and between Groups III and IV.

The data were also analyzed using the chi-square test for independent samples. The five percent level of significance was selected as the criterion for rejection of the null hypothesis.

*HYPOTHESIS 1: Limited-resource individuals using educational materials targeted to match their interest and abilities would have the same knowledge about the subject matter as limited-resource individuals exposed to materials not targeted for their use.*

Limited-resource participants using Extension materials targeted to their use averaged 5.1 correct answers in a 7-question test compared to 3.3 correct for individuals exposed to the original publication. Therefore, the null hypothesis (no difference in knowledge) was rejected.

*HYPOTHESIS 2: Limited-resource individuals using educational materials targeted to match their interests and abilities would have the same comprehension of the subject matter as those limited-resource individuals exposed to materials not targeted for their use.*

Limited-resource participants using Extension materials targeted for their use averaged 6.5 correct answers in a 10-question test compared to 5.8 correct for individuals exposed to the original publication. Therefore, the null hypothesis (no difference in comprehension) was rejected.

Responses to each question were analyzed using the chi-square test to determine whether extreme differences in one or two questions were causing the significant difference between publications. In the test taken by Groups I and II, six questions were significantly different between the original and the targeted version. The seventh question showed no significant difference between groups.

In the test taken by Groups III and IV, only the means of one question were significantly different. However, since there was a significant difference between the two tests, the percentage correct was checked for each question to determine if there were trends accounting for this difference. With the exception of one question, improvements in scores were evident for the targeted publication.

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**Indicators such as reading level and average number of school grades completed suggest that the level of many Extension publications may exceed the comfortable reading abilities of even average reading audiences in Florida.**

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## **Summary**

The effectiveness of printed materials depends on a variety of factors including: (1) readability, (2) comprehension, and (3) amount and type of information presented.

In this study, readability was defined as the characteristics of the material that determine how difficult it is to understand and read. Comprehension was defined as the reader's ability

to understand the information and successfully answer questions based on the information contained in the publication.

The publications tested were Extension sweet potato production guides. The publication "targeted" for limited-resource audiences was developed in the following manner:

1. *Readability.* The information presented was tested using both a readability formula (average number of sentences versus average number of syllables) and a dictionary-type readability test (Dale-Chall).
2. *Comprehension.* The targeted material was based on an information-learning sequence rather than a sweet potato production sequence. Photographs, illustrations, and examples were used whenever possible, especially for abstract concepts.
3. *Amount and type of information.* The information presented was based on educational objectives written *before* materials were developed.

Educational materials were tested with sample groups selected from limited-resource audiences. The educational objectives were used to develop test questions and evaluate effectiveness.

This study reported that limited-resource audiences were significantly more successful in acquiring knowledge and comprehending information when exposed to educational materials that were targeted for their use than when exposed to other, untargeted materials. As an educational strategy, targeting had a greater effect on knowledge acquisition than on comprehension.

## Conclusion

These results suggest that: (1) educational materials developed for large-scale commercial farmers who may understand basic agricultural practices deprived limited-resource farmers of necessary information and (2) materials developed based on assumed reading abilities of the general public presented a barrier to comprehension by limited-resource audiences in Florida.

Indicators such as reading level and average number of school grades completed suggest that the level of many Extension publications may exceed the comfortable reading abilities of even average reading audiences in Florida.

## Footnotes

1. B. B. Archer, *Florida A & M Programs Annual Extension Report* (Tallahassee, Florida: Cooperative Extension Service, 1972).
2. James Nehiley, "The Effects of Readability and Information-Targeting on Limited-Resource Individuals Utilizing Extension Educational

- Materials" (Ph.D. dissertation, The Florida State University, Tallahassee, 1979).
3. E. Smith, "Developing Educational Materials for Adult Basic Education" (Unpublished classroom materials, The Florida State University, Tallahassee, 1978).
  4. According to the 1974 Census, over 40% of all adult Floridians failed to graduate from high school.
  5. E. Dale and J. S. Chall, "A Formula for Predicting Readability," *Educational Research Bulletin*, XXVIII (January, 1948), 11-20, 37-54; R. Flesch, "A New Readability Yardstick," *Journal of Applied Psychology*, XXXII (June, 1948), 221-37; and E. Fry, *Reading Instruction for Classroom and Clinic* (New York: McGraw-Hill, 1972).

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